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R CrB AT THE BEGINNING OF THE VISUAL LIGHT MINIMUM

During August-September 1988 and February-March 1989 a number of polarimetric and photometric observations of R Coronae Borealis at the beginning of minimum brightness were made using the 60-cm telescope of Soviet-Bolivian Observatory Santa Ana (Tarija, Bolivia) with the spectrophotopolarimeter (Bugaenko and Guralchuk, 1985) and the standard UBVR filters. The photometric results are given in Table I. Typical photometric errors are 0.01-0.03 mag. The polarimetric observations in the bands U, B, V, R and integral light (Int.) are given in Table II, where P - percentage polarization, θ - position angle and σ_p , σ_θ are their standard errors respectively.

Colour variations of R CrB at this light minimum are similar to those observed during the rapid (by rate of brightness decrease) minimum of 1972 (Rao, 1974). This assumes also likeness of other observational characteristics at this phase of the brightness curve. Really, wavelength dependence of polarization (for the first two dates) is comparable to that found for the minimum of 1972 (Rosenbush, 1986).

Table I

Date, JD 2447000+	V	B-V	U-B	V-R
372.53	7 ^m .80	0 ^m .53	-0 ^m .16	0 ^m .50
379.48	9.78	.37	- .58	.53
380.56	10.00	.35	- .58	.53

Table II

Date JD 2447000+	U $P \pm \sigma_p, \%$ $\Theta \pm \sigma_\Theta, \text{deg}$	B $P \pm \sigma_p, \%$ $\Theta \pm \sigma_\Theta, \text{deg}$	V $P \pm \sigma_p, \%$ $\Theta \pm \sigma_\Theta, \text{deg}$	R $P \pm \sigma_p, \%$ $\Theta \pm \sigma_\Theta, \text{deg}$	Int. $P \pm \sigma_p, \%$ $\Theta \pm \sigma_\Theta, \text{deg}$
380.5	$2.2 \pm .4$ 110 ± 5	$2.0 \pm .2$ 107 ± 2	$1.3 \pm .2$ 110 ± 3	$1.2 \pm .2$ 92 ± 8	-
381.5	$1.0 \pm .4$ 106 ± 11	$0.8 \pm .2$ 96 ± 7	$1.4 \pm .2$ 102 ± 4	0.3: 91	-
408.5	-	-	-	-	$1.6 \pm .2$ 70 ± 3
411.5	-	-	$2.1 \pm .3$ 91 ± 4	-	-
569.9	-	$0.46 \pm .20$ 135 ± 12	$0.57 \pm .06$ 115 ± 3	$0.63 \pm .14$ 122 ± 6	-
574.9	-	$0.69 \pm .14$ 122 ± 6	$0.46 \pm .06$ 125 ± 4	$0.54 \pm .14$ 127 ± 7	-

: - it is doubtful.

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References:

- Bugaenko, O.I. and Guralchuk, A.L.: 1985, in Photometric and Polarimetric Investigations of Celestial Bodies (ed. Morozhenko A.V.), Kiev, "Naukova Dumka", p.160.
Rao, N.K.: 1974, Ph.D. Thesis. Univ. of California, Santa-Cruz.
Rosenbush, A.E.: 1986, Kinematics Phys. Celest. Bodies, 2, 5, p.29.